Ontario

Ontario Ministry of Agriculture and Food

2003 SUPPLEMENT

Vegetable Production Recommendations

Publication 363S

The Ontario Ministry of Agriculture and Food Web site address has changed to www.gov.on.ca/omaf to reflect the recent ministry name change. This supplement contains updates to pesticides registered in 2002. For complete information, please refer to the full edition of Publication 363, *Vegetable Production Recommendations*, 2002–2003.

Revisions to Chapter 5, Integrated Pest Management

Under 'Nematode Control,' page 45, change first sentence of second paragraph to:

> "The chemicals most commonly used in preplant soil fumigation for nematode control are Basamid, Busan 1020, Telone II, Telone C-17 and Vapam."

Revisions to Chapter 6, Crop Management Recommendations

Formulation Change

Polyram 80 DF has been changed to **Polyram DF**. This change in formulation does not affect the rate of product used per hectare.

Additions and Deletions for 2003

Crop	Page #	Revision
Beans	52	To Table 6–5 **add** new row under 'Insecticide and Fungicide Combinations': **Agrox B-2** diazinon + captan 80 g per 25 kg seed Seed and root maggots, seed decay, damping-off Use seed within one month of treatment.
	52	To Table 6–5 **add** new row under 'Insecticide and Fungicide Combinations': **Agrox CD** diazinon + captan 50 g per 25 kg seed Seed corn maggots, seedling blight and seed rot Use only on seed previously treated with a fungicide.
	52	To Table 6–5 **add** new row under 'Fungicide Only': **Apron FL /Allegiance FL** metalaxyl 46–110 mL per 100 kg seed Pythium seed rot and seedling blight Do not feed to livestock for 4 weeks after planting.
	52	To Table 6–5 **add** new row under 'Fungicide Only': **Vitaflo 280** carbathiin + thiram 260 mL per 100 kg seed Seed rot and seedling blight For use in commercial seed treatment facilities. Do not feed to livestock for 4 weeks after planting.

Crop	Page #	Revision
	54	To Table 6–7 **add** new row for 'Slugs' and under it **add**: **Sluggo** ferric phosphate 25–50 kg/ha (10–20 kg/acre) DHI: 0 Use higher rates on severe infestations
Celery	64	To Table 6–17 in row for metiram under 'Trade Name' **change Polyram 80 DF** to **Polyram DF**. Change rates to 2.25–3.25 kg/ha and 0.9–1.3 kg/acre.
	66	To Table 6–18 under 'Aphids' **add** new row: **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) Maximum 5 applications per season. Alternate applications with other insecticide families. DHI[1]: 7
Cole Crops	70	**Remove Vitavax RS** row from Table 6-22.
	72	In Table 6–24, under 'Treatment After Planting': **Remove Sniper 240 E** and **add** to notes column "Do not use liquid formulations of azinphos-methyl as a transplant drench (phytotoxicity will occur.)"
	73	To Table 6-25 under 'Slugs' **add** new row: **Sluggo** ferric phosphate 25–50 kg/ha (10–20 kg/acre) DHI: 0 Use higher rates on severe infestations.
	73	To Table 6–25 **add** new row for 'Swede Midge' and under it **add**: **Matador** cyhalothrin-lambda 83 mL/ha (33.2 mL/acre) DHI[1]: 3 days for broccoli, brussels sprouts, cauliflower; 1 day for cabbage Maximum 3 applications per year. Allow 7 days between treatments.
	76	To Table 6–27 **add** new row for 'Aphids': **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) DHI[1]: 7 Broccoli, brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi Maximum 5 applications per season. Alternate applications with other insecticide families.
Eggplant	84	To Table 6–34 under 'Colorado Potato Beetle' **add** new row: **Admire 240 F** imidacloprid *Transplant Application*: 7–10 mL per 100 m of row (2–3 mL per 100 ft of row.) *Foliar Application*: 200 mL/ha (80 mL/acre.) DHI[1]: 70 days after soil application; 7 days after foliar application. Do not apply more than once per season as a soil application. Do not follow soil application with a foliar application.
Lettuce, Endive & Parsley	90	To Table 6–39 **add** row for 'Phytophora' and under it **add**: **Ridomil Gold MZ 68 WP** metalaxyl-m/mancozeb 1 kg/ha (0.4 kg/acre) Belgian endive only Only one application to roots immediately after harvest. Apply in 600 L of water to ensure thorough coverage. Do not apply within 21 days of sale of the endive roots.
	91	To Table 6–40 **add**: **Sevin XLR plus** carbaryl Flea beetles and leafhoppers 1.25–2.5 L/ha (0.5–1 L/acre) Tarnished plant bug, armyworms, diamond backed moth 2.5–5.25 L/ha (1–2.1 L/acre) DHI[1]: 14 To avoid possible injury to lettuce, do not apply when foliage is wet or if rain or excessive humidity is expected within 2 days.

Crop	Page #	Revision
	92	To Table 6–41 **add**: **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) Aphids DHI[1]: 7 days Lettuce, endive, parsley, other leafy greens (refer to label) Maximum 5 applications per season. Alternate applications with other insecticide families.
Peas	101	To Table 6-49 **add**: **Apron FL / Allegiance FL** metalaxyl 32–110 mL per 100 kg seed Pythium seed rot and seedling blight Do not feed crop to livestock for 4 weeks after planting.
	101	To Table 6–49 **add**: **Vitaflo 280** carbathiin + thiram 330 mL per 100 kg seed Seed rot and seedling blight For use in commercial seed treatment facilities Do not feed crop to livestock for 4 weeks after planting.
	101	To Table 6–49 **add**: **Agrox B-2** diazinon + captan 80 g per 25 kg seed Seed rot, maggots, damping-off Use seed within one month of treatment.
	101	To Table 6–49 **add**: **Agrox CD** diazinon + captan 50 g per 25 kg seed Seed corn maggots, seedling blight and seed rot Use only on seed previously treated with a fungicide.
	102	To Table 6–50 **add** new row for 'Slugs' and under it **add**: **Sluggo** ferric phosphate 25–50 kg/ha (10–20 kg/acre) DHI: 0 Use higher rates on severe infestations.
Potatoes	115	In Table 6–58 under 'copper hydroxide', under notes **remove** "or fixed copper".
Rhubarb	125	Under Insect Management, **add** new subhead Aphids, and under it **add**: **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) Maximum 5 applications per season. Alternate applications with other insecticide families. DHI[1]: 7 days
Rutabagas	126	From Table 6–64, **remove Vitavax RS Flowable**
Specialty Vegetables	132	To Table 6–68 under 'Aphids' **add**: **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) DHI[1]: 7 days Mustard greens, amaranth, chrysanthemum greens, kale, kohlrabi Maximum 5 applications per season. Alternate applications with other insecticide families.
Spinach and Swiss Chard	134	To Table 6–70 under 'Aphids' **add**: **Assail** acetamiprid 56–86 g/ha (22.4–34.4 g/acre) DHI[1]: 7 days Maximum 5 applications per season. Alternate applications with other insecticide families.
Sugarbeets	137	To Table 6-73 **add**: **Apron FL / Allegiance FL** metalaxyl 46-93 mL per 100 kg seed Pythium seed rot and seedling blight

Crop	Page #	Revision
Sweet Corn	141	To Table 6–76 under 'Insecticide and Fungicide Combinations' **add**: **Agrox B-2** diazinon + captan 85 g per 25 kg seed Seed rots, maggots, damping-off Use seed within one month of treatment
	141	To Table 6–76 under 'Insecticide and Fungicide Combinations' **add**: **Agrox CD** diazinon + captan 50 g per 25 kg seed Seed corn maggots, seedling blight and seed rot Use only on seed previously treated with a fungicide
	141	To Table 6-76 **add** new row 'Insecticide Only', then under it **add**: **Guacho 480 FL** imidacloprid 520 mL per 100 kg seed Flea beetles and wireworms For use in commercial seed treatment plants only
	141	To Table 6-76 under 'Fungicide Only' **add**: **Apron FL / Allegiance FL** metalaxyl 46–110 mL per 100 kg seed Pythium seed rot and seedling blight Do not feed crop to livestock for 4 weeks after planting
	142	To Table 6–77 **add** new row for '**Slugs**' and under it **add**: **Sluggo** ferric phosphate 25–50 kg/ha (10–20 kg/acre) DHI: 0 Use higher rates on severe infestations
Tomatoes	147	Under 'Bacterial Canker, Bacterial Speck' the symptoms listed describe Bacterial Canker, **not** Bacterial Speck.
	149	To Table 6–84 **add**: **Assail** acetamiprid Aphids 56–86 g/ha (22.4–34.4 g/acre) Maximum 4 applications per season. Alternate applications with other insecticide families. DHI[1]: 7 days Colorado Potato Beetle (*foliar treatment*) 40–80 g/ha (16–32 g/acre) Maximum 4 applications per season. Alternate applications with other insecticide families. DHI[1]: 7 days

[1] DHI = Days to harvest interval

Revisions to Chapter 7, Weed Management for Vegetable Crops

Formulation Change

SENCOR 500 F has been changed to **SENCOR 480 F**. The change in formulation DOES NOT affect the rate of product used per hectare (acre). Rates that are shown for SENCOR 500 F apply to the new formulation: SENCOR 480 F.

Discontinued Products for 2003

Product Name	Crops Affected
Bladex Liquid	Sweet Corn
Bladex DF	Sweet Corn
Cutrine Plus	Algae in wholly enclosed farm, fish and fire ponds and fish hatcheries
Evict Solupak	Asparagus, potatoes, transplant tomatoes * SENCOR and LEXONE are equivalent products. See labels for specific uses and rates.
Lentagran	Cabbage, Sweet Corn, Tomatoes
Patoran FL	Lima and Snap Beans, Potatoes

Additions and Corrections for 2003

Crop	Page #	Change
Beans	210	Under 'Postemergence Broadleaf Herbicides' for **REFLEX** (*fomesafen*) the precautions section should read "**Do NOT** harvest snap beans within 30 days of application".
Potatoes	233	Under 'Soil-Applied Broadleaf Herbicides' for **SENCOR 500 F** and **SENCOR 75 DF** Precautions **add** "may be used on red-skinned varieties." **Do NOT** use postemergence SENCOR on Beleisle, Tobique or red-skinned varieties.
Rutabagas	238	Under 'Postemergence Grass Herbicides' **add** new row: **ASSURE II** (96 g/L) quizalofop-p-ethyl For rates and precautions please refer to the label or Publication 75S, *Guide to Weed Control 2003 Supplement*, page 30.
Sugarbeets	244	To **PYRAMIN FL** (430 g/L) Precautions **add**: "**Do NOT** apply when beets are in the cotyledon stage."
Sweet Corn	248	Under *atrazine* plus *paraquat* the precautions section should read "apply in 200–250 L/ha water (80–100 L/acre)"
	248	**New Tank-Mixes:** several new tank-mixes for burn down and residual control have been registered for sweet corn. Please refer to Publication 75S, *Guide to Weed Control 2003 Supplement*, page 8 for full details.
	252	Under DUAL II MAGNUM plus AFOLAN F plus AATREX NINE-O: **Change** the rate for **AFOLAN F** to: 0.79 to 1.56 L/ha (0.32–0.63 L/acre.) **Change** the rate for **AATREX NINE-O** to: 1.1 to 1.7 kg/ha (0.44–0.68 kg/acre)
Tomatoes	263	Under 'Postemergence Grasses and Broadleaf Weeds' **add**: **PRISM 25 DF** rimsulfuron Postemergence Grasses and Broadleaf Weeds May be used on processing and fresh market tomatoes. For rates and precautions please refer to the label or Publication 75S, *Guide to Weed Control 2003 Supplement*, page 30.
		Under 'Postemergence Grasses and Broadleaf Weeds' **add**: **PINNACLE 75% DF** thifensulfuron methyl Postemergence Grasses and Broadleaf Weeds For rates and precautions please refer to the label or Publication 75S, *Guide to Weed Control 2003 Supplement*, page 30.

Revisions to Appendix A, Pesticides Used on Vegetable Crops in Ontario

Change all Aventis references to Bayer.

Change Uniroyal references to Crompton.

Tropotox Plus is now owned by NuFarm Agriculture Inc.

Revisions to Appendix B, Pest Control Product Companies

Change Bayer Inc to Bayer Crop Science, www.bayercropscience.ca, 1-888-283-6847

Change Uniroyal Chemical to Crompton, www.crompton-ocrp.com, 1-800-265-2157

Change Nufarm Agriculture Inc Web site to www.nufarm.ca

Discard old editions of this supplement. Each year the appropriate working group of the Ontario Pest Management Research and Services Committee reviews the pesticides listed in this publication. To the best knowledge of the committee, at the time of printing, all of these pesticides were:

- federally registered
- reviewed by the Ontario Pesticides Advisory Committee (OPAC)
- classified by the Ministry of the Environment as of July 2002

The information in this publication is general information only. By printing this publication, the Ministry of Agriculture and Food does not offer any warranty or guarantee, nor does it assume any liability for any crop loss, animal loss, health, safety or environmental hazard caused by the use of a pesticide mentioned in this publication.

The pesticide product label is a legal document. It is against the law to use the product in any other way. You must also use all pesticides in accordance with the *Pesticides Act* and Regulation 914, administered by the Ontario Ministry of Environment.

In this publication, most recommendations list several pesticides that can be used for each pest discussed. In general the least hazardous materials and those pesticides that pesticide applicators have used satisfactorily for years are listed first. More toxic pesticides and/or newer ones with less practical grower experience follow.

This publication lists a number of brand names of pesticides. This is for your convenience only. It is neither an endorsement of the product nor a suggestion that similar products are ineffective.

Consult each product label for specific information such as compatibility with other materials and the effect of environmental conditions. Weather and other factors influence the effectiveness of pesticides and the likelihood of crop injury.

Health Canada has established maximum residue limits (MRLs) for pesticides. Processors or retailers may demand more restrictive limits. Growers should seek advice of their intended market as to which restrictions or limitations apply. Keep accurate and up-to-date records on pesticide use in each crop.

Federal Registration of Pesticide Products

The Pest Management Regulatory Agency (PMRA) of Health Canada grants registration following an evaluation of scientific data to ensure that the product has merit and value, and the human health and environmental risks associated with its proposed use are acceptable.

1. **Full Registration**

Pesticide registrations are normally granted for a period of five years, subject to renewal.

2. **Temporary Registration**

Temporary registration may be granted for a period not to exceed one year, where the registrant agrees to produce additional scientific or technical information, or the pesticide is used for emergency control of a serious pest outbreak.

Supplemental Labels

You MUST obtain a supplemental label and follow all the label directions when PMRA approves new uses for a registered pesticide that do not appear on the current label.

Examples of when you must use a supplemental label include:

Temporary Registrations for Emergency Use

Minor Use Label Expansion (new label statements for crops that do not already appear on that product label).

You can obtain a copy of a supplemental label from the pesticide manufacturer or pesticide vendor, the grower association that sponsored the emergency registration or minor use, from OMAF or PMRA's Pest Management Information Service.

For more information on the federal registration status check the PMRA Web site at *www.hc-sc.gc.ca/pmra-arla* or call **1-800-267-6315**.

Regulation of Pesticides in Ontario

Classification of Pesticides into "Schedules"

The Ministry of the Environment classifies all pesticide products into one of six **schedules**, based on the potential hazards that product may have for human health and the environment. For up-to-date information on the regulatory status of any pesticide check the Ontario Pesticides Advisory Committee Web site at *www.opac.gov.on.ca* or call (416) 314-9230 fax (416) 314-9237.

Licensing and Certification Requirements for Pesticide Users

You must be a certified grower or licensed exterminator to buy and use Schedule 1, 2 and 5 pesticides.

Requirements for Growers and their Assistants

Growers must be certified through the **Grower Pesticide Safety Course** to buy and use Schedules 1, 2 or 5 pesticides on land they farm. There must be at least one certified grower for each farm operation.

All agricultural assistants must also receive formal pesticide safety training, recognized by the Ministry of the Environment, before they can use Schedule 2 or 5 pesticides under the supervision of a certified grower. This applies to all assistants — including family members, farm employees and seasonal workers.

For more information about training for growers and agricultural assistants check the Ontario Pesticide Education Program Web site at *www.ridgetownc.uoguelph.ca/opep* or call **1-800-652-8573**.

Requirements for Commercial Applicators and their Assistants

If you plan to apply pesticides as a business, you must be a licensed exterminator. **This includes farmers who custom apply pesticides for other farmers and charge a fee for this service.** You must complete a home study course and certification exam, and send proof of certification to the Ministry of the Environment to obtain your license.

Unlicensed assistants must be Technicians before they may handle Schedule 2 (with restrictions), 3, 4 and 6 products under indirect supervision of a licensed exterminator. Technicians may not handle Schedule 1 and 5 products. For more information about exterminators and technicians check the Ontario Pesticide Training and Certification Web site at *www.ridgetownc.uoguelph.ca/optc* or call **1-888-426-9999**.

Cette publication est aussi disponible en français.

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